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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/752,071	12/29/2000	Stephen S. Selkirk	00-116-DSK	4518

7590 04/05/2004
Wayne P. Bailey
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Louisville, CO 80028-4309

EXAMINER

LANE, JOHN A

ART UNIT	PAPER NUMBER
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2188

DATE MAILED: 04/05/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/752,071

Applicant(s)

SELKIRK ET AL.

Examiner

Jack A Lane

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE ____ MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 March 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-23 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____. |

DETAILED OFFICE ACTION

1. Claims 1-23 are presented for examination.
2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. § 103 (a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 C.F.R. § 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of potential 35 U.S.C. § 102(f) or (g) prior art under 35 U.S.C. § 103(a).

3. Claims 1-23 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Voigt (Pat. No. 5,960,451) and Jacobson et al. (5,392,244) or Kirby (6,526,478), each taken separately.

Voigt teaches the claimed “one or more hosts” as computer 22 and/or computers coupled to network 36. The claimed “plurality of data storage elements” correspond to memory 44, 42 and data storage system 24. The claimed “host network attachment” corresponds to circuitry inherently found in computer system 20 for connecting the memory to the network. The claimed “storage server/controller” corresponds to circuitry including RAID management system 56 and/or controllers 54a, 54b. The claimed “permanent data storage media” corresponds to non-volatile memory 44. The claimed “management information” corresponds to parameters/preferences such as physical capacity, number of storage disks, allocated capacity, characteristics of the RAID, percentage to be used (col. 2, line 55 – col. 3, line 2), performance (col. 4, line 16) and availability (col. 7, lines 26-42). The claimed “units of data” corresponds to the logical storage units (LUNs). The claimed function of “management information may be manipulated” corresponds to altering characteristics/parameters of the RAID or logical storage units (LUNs). However, the claimed “virtualization means for converting a storage request...to at least one data storage element...”

Jacobson is discussed in the Background of the Invention of Voigt and teaches the claimed “virtualization means” as shown in the memory mapping scheme of figure 4. A physical storage space (i.e. disks 12, fig. 1) is mapped into a RAID level virtual storage space (i.e. virtual volume) which is then mapped into an application level virtual storage space (i.e. storage requests are first made to or from virtual blocks 50, col. 6, lines 50-52). Applicant should note the virtual storage space 40 and 50 could be considered to

correspond to the claimed “virtual volume.” Jacobson’s memory mapping scheme enables improved memory access to the disk storage device.

Kirby teaches the claimed “virtualization means” as corresponding to array management module 52 shown in figure 2. Module 52 maps information from LUN 50 (virtual volume) to disks 26. Kirby’s mapping scheme increase input/output performance of the system.

Because memory mapping from a virtual storage space to a physical storage space provides improved I/O memory performance, it would have been obvious to use Jacobson’s or Kirby’s memory mapping scheme in Voight to improve I/O performance. Therefore, the claimed invention would have been obvious to one of ordinary skill in the art.

The examiner believes most, if-not-all, dependent claim features are taught by Voight, Kirby or Jacobson et al. For example, in claim 3, the claimed step of “allowing the location of the manipulation of management information to be changed...” corresponds to moving the parameters/preferences discussed in Voight. However, in the event a claim feature(s) is not inherent applicant should consider the claim feature(s) in light of the Official notification put forth below. Official notice is taken of the prior art teaching any claim feature not specifically discussed above. That is, any prior art (including that of record) teaching the more well known claim features commonly found in the dependent claims. The claim features, while part of the invention, appear to be well known and their relevance not essential to the main invention found in the

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independent claim(s). Thus, a detailed discussion of the well known claim features is not warranted at this time. Applicant is invited to comment on any claim feature(s) deemed to be patentably distinguishable from the prior art.

4. Applicant's amendment necessitated the new grounds of rejection. Accordingly, **THIS ACTION IS MADE FINAL.** See M.P.E.P. § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 C.F.R. § 1.136(a).

5. A SHORTENED STATUTORY PERIOD FOR RESPONSE TO THIS FINAL ACTION IS SET TO EXPIRE THREE MONTHS FROM THE DATE OF THIS ACTION. IN THE EVENT A FIRST RESPONSE IS FILED WITHIN TWO MONTHS OF THE MAILING DATE OF THIS FINAL ACTION AND THE ADVISORY ACTION IS NOT MAILED UNTIL AFTER THE END OF THE THREE-MONTH SHORTENED STATUTORY PERIOD, THEN THE SHORTENED STATUTORY PERIOD WILL EXPIRE ON THE DATE THE ADVISORY ACTION IS MAILED, AND ANY EXTENSION FEE PURSUANT TO 37 C.F.R. § 1.136(a) WILL BE CALCULATED FROM THE MAILING DATE OF THE ADVISORY ACTION. IN NO EVENT WILL THE STATUTORY PERIOD FOR RESPONSE EXPIRE LATER THAN SIX MONTHS FROM THE DATE OF THIS FINAL ACTION.

Any response to this final action should be mailed to:

Box AF

Under Secretary of Commerce for Intellectual Property and Director of the
United States Patent and Trademark Office

PO Box 1450

Alexandria, VA 22313-1450

or faxed to:

(703) 872-9306, (for Official communications intended for entry)

Or:

(703) 872-9306, (for Non-Official or Draft communications, please
label "Non-Official" or "DRAFT")

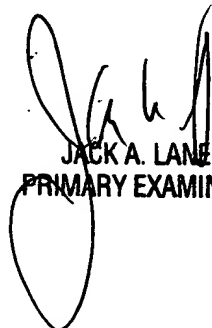
Hand-delivered responses should be brought to Crystal Park II, 2121
Crystal Drive, Arlington, VA., Sixth Floor (Receptionist).

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jack A. Lane whose telephone number is 703 305-3818. The examiner can normally be reached on Mon-Fri from 7:30AM-6:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mano Padmanabhan can be reached on 703 306-2903.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703 305-3900.


JACK A. LANE
PRIMARY EXAMINER